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Application Number	10/708,271
Filing Date	FEBRUARY 20, 2004
First Named Inventor	Douglas A. Luopa
Art Unit	
Examiner Name	
Attorney Docket Number	49879.1

Total Number of Pages in This Submission

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- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
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- ☐ Certified Copy of Priority Document(s)
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Sheet 1 of 5

Complete if Known	
Application Number	10/708,271
Filing Date	February 20, 2004
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Group Art Unit	
Examiner Name	
Attorney Docket Number	49879.1

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	U.S. Patent Document Number	Kind Code[2] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	2,484,279		Folz	10-11-1949	
	2	4,945,758		Carpenter	08-07-1990	
	3	5,531,103		Eaton	07-02-1996	
	4	6,311,546		Dickinson, et al.	11-06-2001	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Office[3]	Number[4]	Kind Code[5] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
	5	CA	1,143,012		Muller	03-15-1983		
	6	JP	58196437		Tokyo Shibaura Denki	11-15-1983		
	7	JP	59164942		Doryokuro Kakunenryo	09-18-1984		

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Group Art Unit	
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Attorney Docket Number	49879.1

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Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	8	WANG, et al. "Enhanced Mass Transfer and Wall Shear Stress in Multiphase Slug Flow" - Paper 02501, Corrosion 2002, NACE International Conference, Houston, Texas, U.S.A. pp.2501/1 - 2501/15.	
	9	SANCHEZ, et al. "Designing and Building an Electrochemical Cell to Measure Corrosion Rate in Flow Lines", Paper 217, Corrosion 99, NACE International Conference, Houston, Texas, U.S.A. pp. 1-13.	
	10	MENDOZA-FLORES, et al.; "Influence of Electrode Length On the Measurement of Cathodic Kinetics of Steel Corrosion in C02 Containing Solutions, Under Turbulent Flow Conditions", Paper 02490, Corrosion 2002, NACE International Conferneces,. pp. 02490/1-02490/12.	
	11	de WAARD, et al., "Influence of Liquid Flow Velocity on C02 Corrosion: A Semi-Empirical Model, Paper 128, Corrosion 95, NACE International Conference, Houston, TX, pp. 128/1-128/15.	
	12	ZHANG, et al. "Development of a Mechanistic Model for Predicting Corrosion Rate in Multiphase Oil/Water/Gas Flows, Paper No. 601, Corrosion 97, NACE International Conference, TX, pp.601/1-601/30.	
	13	CHESTNUT, et al. "The Measurement of Corrosion Inhibitor Film Life in High Velocity Flow", Paper No. 135, Corrosion 95, NACE International Conference, TX, pp. 135/1 - 135/24.	
	14	HIGH, M.S. et al., "Mechanistic Modeling of Mass Transfer in the Laminar Sublayer in Downhole Systems", Paper 00062, Corrosion 2000, NACE International Conference, TX, pp. 1-20.	
	15	BOJES, Josef, et al. "A Laboratory Evalutaion of the Variables That Affect The Application of Batch Corrosion Inhibitors - Phase I", Paper 02289, Corrosion 2002, NACE International Conference, TX, pp. 02289/1 - 02289/10.	
	16	DE REUS, J.A.M., et al., Corrosion Inhibitor Selection and Field Verification in Oil and Gas Production", Paper 02279, Corrosion 2002, NACE International Conference, pp. 02279/1 - 02279/8.	
	17	DOUGHERTY, J.A., et al. "Corrosion Inhibitor Film Life Studies Using a RCE Flow-Through Test", Paper 02286, Corrosion 2002, NACE International Conference, TX, pp. 02286/1 - 02286/12.	
	18	HONGBIN, Wang, et al. "Why Corrosion Inhibitors Do Not Perform Well in Some Multiphase Conditions: A Mechanistic Study", Paper 02276, Corrosion 2002, pp. 02276/1 - 02276/15.	

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	19	SHI, Hua, et al. "Predicting of Water Film Thickness and Velocity for Corrosion Rate Calculation in Oil-Water Flows", Paper 02500, Corrosion 2002, NACE International Conference, TX, pp. 02500/1 - 02500/17.	
	20	EDEN, D.A., et al., "Corrosion Monitoring as a Means of Effecting Control of C02 Corrosion", Paper 01057, Corrosion 2001, NACE International Conference TX, pp. 01057/1 - 01057/8.	
	21	THOMAS, M.J.J. Simon, et al. "Field Corrosivity Measurements - An Essential Component of the Corrosion Control Process" Paper 01038 Corrosion 2001, NACE International Conference, TX, pp. 01038/1 - 01038/16.	
	22	BOJES, Josef, et al. "Batch Inhibitor Film Distribution Studies: Corelation of Field Data With Laboratory Results", Paper 01028, Corrosion 2001, NACE International Conference, TX, pp. 01028/1 - 01028/17.	
	23	DEVA, Y.P., et al. "Use of Electrochemical Noise to Monitor Multiphase Flow and Corrosion", Paper No. 337, Corrosion 96, NACE International Conference, TX, pp. 337/1 - 337/26.	
	24	DICKINSON, W.H., et al. "Manganese Biofouling of Stainless Steel: Deposition Rates and Influence on Corrosion Processes", Paper 291, Corrosion 96, NACE International Conference, TX, pp. 291/1 - 291/9.	
	25	CHEN, Y., et al., "Comparison of ECN and EIS Measurement for Corrosion Monitoring Under Multiphase Flow Conditions", Paper 276, Corrosion 97, NACE International Conference, TX, pp. 276/1 - 276/21.	
	26	FARQUHAR, G.B., et al, "Prediction of Corrosion Inhibitor Performance Using Simulated C02/H2S Environmental Autoclave and Flowloop Tests", Paper 151, Corrosion 97, NACE International Conference, TX, pp. 151/1 - 151/35.	
	27	GOPAL, M., et al., "Mechanisms Contributing to Enhanced Corrosion in Three Phase Slug Flow in Horizontal Pipes" Paper No. 105, Corrosion 95, NACE International Conference, TX, pp. 105/1 - 105/13.	
	28	KEMPE, Philippe, et al. "Field Trial Results of a New, Rapid Corrosion Monitoring System", Paper No. 00090, Corrosion 2000, NACE International Conference, TX, pp. 00090/1 - 00090/12.	
	29	JORDAN, Ken, "Erosion in Multiphase Production of Oil & Gas", Paper No. 58, Corrosion 98, NACE International Conference, TX, pp. 58/1 - 58/34.	

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	29	GOPAL, Madan, et al. "Effect of Multiphase Slug Flow On the Stability of Corrosion Product Layer", Paper No. 46, Corrosion 1999 NACE International Conference, TX, pp. 046/1 - 046/25.	
	30	MARINTEK, Jon K., "Flow Loop Studies of the Relationship Between Limiting Currents and C02/H2S Corrosion of Carbon Steel" Paper No. 44, Corrosion 98, NACE International Conference, TX, pp. 44/1 - 44/12.	
	31	DOUGHERTY, J.A., "Effect of Variables on Downhole Corrosion Inhibitor Application", Paper No. 22, Corrosion 96, NACE International Conference, TX, pp.22/1 - 22/19.	
	32	KANG, C., et al. "The Effect of Slug Frequency on Corrosion in High Pressure, Inclined Pipelines" , Paper No. 20, Corosion 96, NACE International Conference, TX, pp. 20/1 - 20/16.	
	33	JEPSON, W.P., et al., "Predictive Model for Sweet Corrosion in Horizontal Multiphase Slug Flow", Paper 19, Corrosion 96, NACE International Conference, TX, pp.19/1 - 19/17.	
	34	VIDEM, K., et al. "Corrosion of Carbon Steel in C02 Saaturated Aqueous Solutions Containing Small Amounts of H2S", Paper No. 12, Corrosion 94, NACE International Conference, TX, pp. 12/1 - 12/16.	
	35	CHEN, H.J,, et al. "Inhibition of Slug Front Corrosion in Multiphase Flow Conditions", Paper No. 55, Corrosion 98, NACE International Conference, TX, pp.55/1 - 55/24.	
	36	FU, Shi-Liang, et al. "A New Localized Corrosion Monitoring Technique for the Evaluation of Oilfield Inhibitors", Paper No. 346, Corrosion 96, NACE International Conference, TX, pp. 346/1 - 346/20.	
	37	OLSEN, Stein, et al. "Flow Effects on Corrosion Inhibitors in Topside Flowlines" Paper No. 129, Corrosion 95, NACE International Conference, TX, pp. 129/1 - 129/22.	
	38	MORALES, Jose L., et al. "Determination of Galvanic Effect and Flow Effect on C02 Corrosion Behavior Using a Dynamic Field Tester" Paper No. 116, Corrosion 95, NACE International Conference, TX, pp. 116/1 - 116/15.	
	39	DOUGHERTY, J.A., et al. "The effects of flow on Corrosion Inhibitor Performance", Paper No. 113, Corrosion 95, NACE International Conference, TX, pp/ 113/1 - 113/13.	

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	40	KOLTS, Juri, et al. "Flow Effects In Corrosion Inhibitor Selection", Paper No. 108, Corrosion 95, NACE International Conference, TX, pp. 108/1 - 108/12.	
	41	SHADLEY, J.R., et al. "Velocity Guidelines for Preventing Pitting of Carbon Steel Piping When the Flowing Medium Contains C02 and Sand" Paper No. 15, Corrosion 96, NACE International Conference, TX, pp. 15/1 - 15/16.	
	42	JEPSON, W.P., et al. "Model for Sweet Corrosion in Horizontal Multiphase Slug Flow", Paper No. 11, Corrosion 97, NACE International Conference TX, pp. 11/1 - 11/12.	
	43	PALACIOS T., Carlos, A. et al. "Application of Simulation Techniques for Internal Corrosion Prediction", Paper No. 2, Corrosion 97, NACE International Conference, TX, pp. 2/1 - 2/17.	
	44	BROWN, Gerald K. "Internal Corrosion Monitors Now Offer Quick eadings - Part 1", Article, Pipe Line & Gas Industry, March, 1996, pp. 29-32.	
	45	BROWN, Gerald K., "Traditional Corrosion Monitors have their Usefullness - Part 2", Article, Pipe Line & Gas Industry, April 1996, pp. 53-55.	
	46	BROWN, Gerald K., "External H2 Sensor Monitors Internal Pipe Corrosion - Part 3", Article, Pipe Line & Gas Indusry, June, 1996, pp. 29-32.	

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